

REMARKS

Prior to entry of this amendment, claims 1-41 are currently pending in the subject application. Claims 1 and 23 are independent.

Applicants appreciate the Examiner's acknowledgement of applicants' claim for foreign priority and receipt of a certified copy of the priority document.

Applicants further appreciate the Examiner's acceptance of the drawings filed on February 25, 2004.

Claims 1-41 are presented to the Examiner for further prosecution on the merits.

A. Introduction

In the outstanding Office action, the Examiner rejected claims 1, 9, 23 and 27 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,806,111 to Ehrichs et al. ("the Ehrichs et al. reference"), rejected claims 22 and 37 under 35 U.S.C. 103(a) as being unpatentable over the Ehrichs et al. reference in view of U.S. Patent Publication No. 2002/0181915 to Craig et al. ("the Craig et al. reference"), and indicated claims 2-8, 10-21, 24-26, 28-36 and 38-41 contain allowable subject matter.

B. Asserted Obviousness Rejection of Claims 1, 9, 23 and 27

In the outstanding Office action, the Examiner rejected claims 1, 9, 23, and 27 under 35 U.S.C. § 103(a) as being unpatentable over the Ehrichs et al. reference. This rejection is respectfully traversed for at least the reasons set forth below.

Independent claims 1 and 23 recite, in part, that "the light-emitting device section and the light-receiving device section use the doped region in common for photoelectrical conversion." This is clearly shown in FIG. 2 of the original specification, in which the doped region 25 for photoelectrical conversion is common to both the light emitter 20 and the light detector 30. Such a structure may allow, for example, the input and output of an image in a single panel.

In contrast, the Ehrichs et al. reference is directed to an optical interconnect, in which a light receiving semiconductor device 24 receives light from a light emitting semiconductor device 22 to facilitate communication between other semiconductor components 14-20 on the semiconductor substrate 12. In FIGS. 1-16 of the Ehrichs et al. reference, the light emitter 22 and the light detector 24 are clearly separate components, having nothing in common. In FIGS. 17-20, in which the light emitter 426 and the light detector 428 are formed above the semiconductor devices 14-20, doped region 406 is solely for the light emitter 426 and doped

region 408 is solely for the light detector 428. This is further evidenced by the teaching in col. 11, lines 20-26 of the Ehrichs et al. reference that the light emitter and the light detector may be in separate planes.

The Examiner notes that the Ehrichs et al. reference fails to explicitly teach that the doped region in common is used for photoelectrical conversion, and then states that structure rather than function must be relied on to differentiate apparatus claims over the prior art. However, it is respectfully submitted that the Examiner has failed to indicate **any** common doped region in the Ehrichs et al. reference, thereby failing to establish a *prima facie* case of obviousness of the structure recited in claims 1 and 23. Further, the limitation that the doped region is used in common for the photoelectrical conversion does further define the structure, as this defines the relative positioning of the doped region, the light emitting region and the light receiving region. Finally, if the light emitter and the light detector in the Ehrichs et al. reference did have a common doped region, this structure would no longer function as an optical interconnect, as the optical pathway there between would be non-existent.

Therefore, it is respectfully submitted that the Ehrichs et al. reference fails suggest, much less disclose, the present invention as recited in claims 1 and 23. The remaining rejected claims depend from claims 1 and 23 respectively, and are believed to be allowable for at least the reasons their respective base claims are believed to be allowable.

C. Asserted Obviousness Rejection of Claims 22 and 37

In the outstanding Office action, the Examiner rejected claims 22 and 37 under 35 U.S.C. § 103(a) as being unpatentable over the Ehrichs et al. reference in view of Craig et al. reference. The Craig et al. reference fails to provide the teachings noted above as missing from the Ehrichs et al. reference. Therefore, it is respectfully submitted that claims 22 and 37, depending from claims 1 and 23, respectively, are allowable for at least the reasons set forth above.

D. Allowable Subject Matter

The indication that claims 2-8, 10-21, 24-26, 28-36 and 38-41 contain allowable subject matter is gratefully acknowledged. However, it is respectfully submitted that all of the claims are in condition for allowance, and an early indication of the same is earnestly solicited.

E. Conclusion

The additional references cited by the Examiner have not been relied on to reject the claims. Therefore, no comments concerning these documents are believed necessary at this time.

Since the cited prior art references neither anticipate nor render obvious the subject invention, applicants respectfully submit that claims 1-41 are in condition for allowance and notice to that effect is respectfully requested.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

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PETITION and
DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.